Virtual Role-play: Middle School Educators Addressing Student Mental Health

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Objectives: In this study, we examined the impact of a virtual training program, Kognito At-Risk role-play simulation, on the mental health and suicide prevention gatekeeping skills of middle school educators. **Methods:** The validated Gatekeeper Behavior Scale was administered to 33,703 participants at baseline, post-training and follow-up. Helping behaviors were measured at baseline and follow-up. We also assessed preparedness, likelihood, and self-efficacy concerning leading conversations with youth about bullying and suicide. **Results:** Participants showed positive change from pre-test to 3-month follow-up on variables of interest. Hotelling's T^2 test indicated that, as a set, gatekeeper attitudes of preparedness, likelihood, and self-efficacy differed between pre-test and post-test, $F (3, 33,512) = 16,283$, $p < .001$, $\eta^2_{partial} = .59$. Number of students about whom gatekeepers were concerned ($p < .05$), number of students approached to discuss concerns ($p < .001$), and number of students referred to support services ($p < .001$) increased significantly with training. **Conclusions:** The At-Risk simulation shows promise in detecting and referring students in psychological distress, including risk of suicide. Fidelity is maintained because the program cannot be altered. At-Risk can be an effective and affordable way to provide suicide prevention training for those working in schools.

According to the World Health Organization (WHO), nearly 800,000 people die by suicide every year, in all countries, and at all ages.[1] Prevention and intervention strategies that are proven to be effective can be implemented to decrease the incidence of suicide.

The WHO reports the most recent data available, 2010-2016, broken out by age. Suicide rates per 100,000 population range from a low of 0.4 in Barbados to a high of 30.2 in Guyana, averaged across both sexes.[1] Among the member states of the Organization for Economic Cooperation and Development (OECD), South Korea has the highest suicide rate of 26.9 per 100,000 people. The single sex rate is highest for Lithuanian males, 47.5.

In the Unites States (US), according to the same WHO statistics, the suicide rate is 15.3 per 100,000 people.[1] Suicide has increased 28% since 2000; it was the tenth leading cause of death for people of all ages in 2015.[2] Among teenagers and youth ages 15-24, suicide is the second leading cause of death.[3] The US Centers for Disease Control and Prevention (CDC) reports that, in 2015, suicide deaths for teenage girls ages 15 to 19 were the highest since 1975.[4] Suicidal ideation and suicide attempts are frequent in adolescents; lifetime prevalence of attempt peaks between 16 and 18 years of age.[5]

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A significant public health issue in the US is student mental health in middle school populations. Researchers found that mental health concerns of adolescents have increased; study participants in 2007 reported significantly more emotional and stress-related problems than did adolescents in previous years.[6] A 2010 study showed that 13% of 8-to-15 year-olds had a mental health condition in the past year,[7] and, in 2017, a Gloucester, Massachusetts Youth Health Survey of public school students in grades 6-12, found that 18% of middle school youth had experienced depression in the prior 12 months, 12% considered suicide, 8% made a plan, and 2% attempted suicide.[8]

Interventions have included universal training of gatekeepers in various high-risk settings, including middle and high schools, universities, and the military. The purpose of gatekeeper programs is to train key individuals on techniques for the early identification of suicidal ideation and behavior, and how to make appropriate follow-up service referrals.[9]

Internationally, the United Nations (UN) has recommended that gatekeeper training should be considered an important part of implementing an effective strategy to prevent suicide.[10] In South Korea, multiple entities have provided a government-certified gatekeeper training including the Question, Persuade, Refer (QPR) program.[11,12]

In the US, the 2012 National Strategy for Suicide Prevention includes both prevention and intervention using gatekeeper training.[13] Goal 7 says that gatekeeper training should be provided to "community and clinical service providers on the prevention of suicide and related behaviors." The goal continues to say that all persons whose work brings them into contact with those who are at risk for suicide should be trained on how to recognize and address suicidal thoughts and behaviors. Gatekeeper training is listed as a promising intervention by the Suicide Prevention Resource Center (SPRC).[14] A 2005 panel report published in the *Journal of the American Medical Association (JAMA)* found evidence for decreased suicide rates following gatekeeper training.[15] A systematic review of school-based intervention to prevent suicide-related behavior concludes that gatekeeper training is effective in increasing knowledge and confidence among participants; some studies also show self-reported improvements in practice.[16]

The few studies conducted on the effects of gatekeeper training in middle schools assessed the impact of SOAR (Suicide, Options, Awareness, and Relief) and QPR approaches. Angerstein, Linfield-Spindler, and Payne conducted a pilot study of SOAR with 56 middle school gatekeepers and 56 comparison gatekeepers.[17] Wyman et al[9] conducted a randomized controlled trial (RCT) in 32 schools, 20 of which were middle schools. Both of these studies found increased gatekeeper knowledge about suicide. In the Wyman et al[9] study, behavior following training was impacted by staff role, previous training, and baseline attitudes and behaviors.[9] Staff with clinical training exhibited large effects on knowledge, preparedness, and efficacy. A 2008 study reported on an evaluation of QPR gatekeeper training for elementary, middle school, and high school students, comparing the results for teachers and school counselors.[18] The results showed that counselors made more referrals for services than did teachers, and that the effects of training were preserved for the 4-5 months between the end of training and the follow-up assessment.

Albright, Eastgard, Goldman, and Shockley[19] assessed gatekeeper attitudes gained through an innovative online role-play simulation involving virtual students called *At-Risk for High School Educators* that is listed in the Substance Abuse and Mental Health Services Administration's National Registry of Evidence-Based Programs and Practices (NREPP). Treatment group participants completed a baseline survey followed by the simulation then a post survey; wait-listed participants completed a baseline survey only. The treatment group participants showed statistically significant increases relative to wait-list participants in preparedness to recognize, approach and discuss concerns, and refer a student in psychological distress including suicide. The treatment group also demonstrated statistically significant increases in likelihood or behavioral intent to approach a student, and self-efficacy in their ability to discuss concerns, recommend mental health support and aid in connecting a student with services. In a similar study Long et al[20] found that elementary school teachers continued to report significantly higher gatekeeper attitudes 3 months after training ended and demonstrated significant self-reported increases in the number of students identified, approached to discuss concern and referred to mental health

Table 1
Participant Demographic Information

	N	Percent
Sex		
Female	25,240	76.1
Male	7738	23.3
Transgender	39	0.1
Other	143	0.4
Race/Ethnicity		
White, non-Hispanic	20,752	62.6
Black, non-Hispanic	3045	9.2
Hispanic	7916	23.9
American Indian/Alaska Native	179	0.5
Asian	594	1.8
Native Hawaiian/Other Pacific Islander	78	0.2
Multiple ethnicities	596	1.8
Job Role		
Teacher	24,469	73.8
School Administrator	1575	4.7
Other (eg, tutor, clerical personnel)	7116	21.5
Time Spent Daily with Students		
0-15 minutes	2046	6.2
15-30 minutes	2228	6.7
30 minutes- 1 hour	3296	9.9
1- 2 hours	2579	7.8
More than 2 hours	23,011	69.4
Have you previously received mental health training?		
Yes	3178	9.4
No	30,525	90.6
Age	M = 40.32, SD = 11.80	
Years in Education	M = 11.68, SD = 9.16	

counseling.

Overall, findings from research studies involving gatekeeper programs in school communities point to the need for further research on gatekeeper programs for school staff working with adolescents, and across different kinds of gatekeeper training. The current study examines the effects of *At-Risk for Middle School Educators* on middle school teacher and staff attitudes, motivation, and behaviors related to identifying and referring students in psychological distress. Specifically, we hypothesized that there would be significant pre- to post-intervention improvements in the user attitudes of preparedness, likelihood or behavioral intent, and self-efficacy to identify signs of psychological distress, talk to a student about concerns and motivate students to seek help if needed. In addition, we hypothesized that there would be a significant increase in the self-reported number of students identified, approached to have a discussion about concern and referred to mental health support services 3 months following the training program. This is the first known study

of the at-risk middle school simulation submitted for peer review.

METHODS
Participants

The sample initially consisted of 43,257 educators who were recruited between September 2012 and April 2018 from district superintendent offices, principals, and by word-of-mouth. Participants from 27 geographically dispersed US states gained free access to the simulation via institutional licenses purchased directly from the vendor by school districts or by state departments of education, health or public health, and mental health organizations. Approximately 90% of participants were required to complete the training by the district, or to be in compliance with the state requirements. Among participating schools, we used a convenience sample of participants. Overall, 9554 participants did not complete the post-test, resulting in a final sample size of 33,703. Participants were primarily white female teachers or teacher's aides. Table 1 provides complete demographic information.

Instrumentation

We used the Gatekeeper Behavior Scale (GBS), originally developed by Albright et al,[21] for the present study.[21] A confirmatory factor analysis showed that a 3-factor model based on the subscales of preparedness, likelihood, and self-efficacy provided the best fit for the data. Factor loadings showed all items correlated highly with theoretical constructs ($r \geq .84$, $p < .001$). The GBS had high internal consistency ($\alpha = .93$). Criterion related validity for likelihood to discuss concerns at post-training was significantly related to approaching students believed to be in psychological distress ($r = .219$, $p < .001$). Likelihood to refer significantly correlated with the number of students referred ($r = .235$, $p < .001$). Convergent validity was established using a correlation between self-efficacy in motivating someone to seek help and general self-efficacy ($r = .519$, $p < .001$). To assess the effectiveness of the training, we were interested in differences between pre-test and post-test scores on (1) participant preparedness to assist a student in psychological distress, (2) likelihood of engaging in helping behaviors, and (3) self-efficacy to engage in such behaviors. Participant preparedness was com-

puted as the average of 5 separate items (Cronbach's α ranging from .90 to 96); likelihood was analyzed using the average of 2 separate items (Cronbach's α ranging from .76 to .86); self-efficacy was computed as the average of 4 separate items (Cronbach's α ranging from .87 to .94). We also were interested in the effect of training on one item regarding educator perceptions of their role in the mental health of students. Table 2 contains the specific items.

Means efficacy is a measure of an individual's belief in the utility of the tools available to perform a job; it has been correlated with changes in behavior.[22] We measured means efficacy by 6 items that were rated on a 5-point Likert response scale ranging from "not at all or to a very little extent" to "to a very great extent" and were administered in the post-test.

Gatekeeper behaviors were measured in the pre-survey just before the training and in the 3-month follow-up survey. They included estimates of the number of students over the past 2 academic months that participants identified as being in psychological distress, approached to discuss concern, and referred to school support services.

Procedure

The simulation, *At-Risk for Middle School Educators,* is an online role-play digital learning experience where the goal is to prepare middle school educators and staff to: (1) identify students exhibiting signs of psychological distress, including anxiety, depression, and thoughts of suicide, (2) approach students to discuss their concern, and (3) make a referral to school support personnel. The simulation is based on a conversation platform that integrates use of basic motivational interviewing (MI) skills.[23] This includes the integration of the 4 core MI skills: (1) asking open ended questions, (2) providing affirmation, (3) reflective listening (listening closely and periodically confirming comprehension), and (4) summarizing client self-assessments.

The virtual student humans are coded to be emotionally responsive, have memory and personalities, and to respond like a real student in psychological distress. The simulation requires learners to be engaged in sustained and deliberate role-play practice in a contextually representative virtual environment that is congruous with the setting in
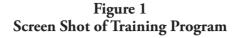
Table 2
Individual Gatekeeper Behavior Scale Items Significance Testing

	Pre-test Mean (SD)	Post-test Mean (SD)	t
Preparedness: How would you rate your preparedness to…			
Recognize when a student's behavior is a sign of psychological distress.	3.46 (0.77)	4.17 (0.65)	179.46
Recognize when a student's physical appearance is a sign of psychological distress.	3.48 (0.78)	4.14 (0.68)	160.98
Discuss with a student your concern about the signs of psychological distress they are exhibiting.	3.27 (0.90)	4.18 (0.68)	197.86
Motivate a student exhibiting signs of psychological distress to seek help.	3.46 (0.87)	4.22 (0.67)	168.83
Recommend mental health support services (such as a guidance counselor, social worker, school psychologist) to a student exhibiting signs of psychological distress.	3.54 (0.95)	4.27 (0.67)	152.20
Likelihood: How likely are you to…			
Discuss your concerns with a student exhibiting signs of psychological distress?	3.18 (0.66)	3.57 (0.56)	104.54
Recommend mental health support services (such as a guidance counselor, social worker, school psychologist) to a student exhibiting signs of psychological distress?	3.31 (0.67)	3.64 (0.54)	86.26
Self-efficacy: I feel confident…			
In my ability to discuss my concerns with a student exhibiting signs of psychological distress.	2.99 (0.61)	3.39 (0.53)	118.87
In my ability to recommend mental health support services to a student exhibiting signs of psychological distress.	3.03 (0.64)	3.43 (0.53)	114.73
In my ability to help a suicidal student seek help.	2.97 (0.67)	3.40 (0.54)	119.76
That I know where to refer a student for mental health support.	3.01 (0.67)	3.46 (0.53)	121.00
Additional Items			
Part of the role of educators is to help parents be informed about mental health support services (such as a guidance counselor, social worker, school psychologist) available to a child who is exhibiting signs of psychological distress.	3.27 (0.58)	3.50 (0.53)	71.86

Note.
Preparedness items were on a 5-point scale; all other items were on a 4-point scale. All comparisons were statistically significant at p < .001.

which learners will apply their skills in real settings (situated learning). The learning model includes instructional design embedded in a game-based conversation platform. A complete discussion of the evidence-based communication strategies used to drive the simulation is summarized by Albright et al.[24]

Intervention: Gatekeeper Training

At-Risk for Middle School Educators was devel-oped by Kognito with input from subject matter experts (SME) and end users.[19] The SMEs are na-tionally recognized scholars and professionals in school mental health and education. It is listed in Section III of the SPRC/American Foundation for Suicide Prevention (AFSP) Best Practices Registry for Suicide Prevention and approved by various state boards of education for teacher continuing education credits. The simulation is one session lasting between 45 and 90 minutes to complete and is self-paced (users can complete the simula-

Figure 1
Screen Shot of Training Program

tion in multiple sittings). Because the secure link is sent directly to the participant, that person decides when to complete the training. Participants can engage in the training at any time or in any convenient location, 24 hours a day, 7 days a week. The recommended administration includes taking the training alone; it can be processed in a group format using a manual available for this purpose. Built around 3 mini-conversation role-plays, learners interact with intelligent, fully animated, and emotionally responsive virtual students experiencing psychological distress. Figure 1 contains a screen shot of a conversation. In the first role-play, the learner assumes the role of a teacher concerned about a new eighth grader who is anxious about fitting in, withdrawn and is being picked on. The learner practices employing MI strategies to increase the student's level of safety and trust while gathering information about the perceived psychological distress.

Learners communicate with the virtual students by selecting from a dynamic menu of dialogue options that represent a variety of effective, neutral, and ineffective (such as being judgmen-

tal) conversation tactics. In some cases, a tactic that is ineffective at one point in the conversation may be effective elsewhere. Once learners choose a dialogue option, they see their virtual teacher "perform" the dialogue and then observe the verbal and nonverbal responses of the virtual student. A new set of dialogue options then appears, based on which tactic was selected. The virtual student's level of trust is displayed on a trust meter, providing continual feedback on the learner's choices as they progress through the simulation. Additionally, a virtual coach provides real-time positive feedback for correct tactics and suggestions for incorrect tactics or pitfalls. Lastly, to encourage exploration and curiosity, there is an "undo" option that allows the learner to take back the dialog option they selected; the learner can try another option and observe the reaction of the virtual student. Throughout the simulation learners are able to view the student's private thoughts, which are designed to provide the learner with greater insight, understanding, and empathic communication skills. The role-play is completed when the learner earns the student's trust and the student reveals what is creating the psychological distress; this knowledge leads to recommendations and/or a referral.

The next role-play is with a student who may be engaging in bullying behaviors. The learner continues to build on the MI strategies used previously; the role-play is complete when the learner discovers that the student is experiencing stressful events in her life that might cause her aggressive behaviors. The supportive relationship that results from the role-play helps her better understand and control her behaviors. In the last conversation, the learner benefits and builds upon their learning from the previous 2 role-plays. The learner is concerned about a student who is depressed and having thoughts of suicide. Learners throughout this role-play need to earn the student's trust, which results in the student discussing thoughts of self-harm. The learner helps the student walk over to the school's support services.

Data Analysis

The pre-, post- and follow-up administrations were matched to unique individuals. Using a repeated measures design allows for more powerful statistical inference testing than group only reporting of means at the 3 time points. Because the 3 GBS outcomes are expected to be closely associated, we used a multivariate analysis, Hotelling's T^2, to assess the impact of the training simulation on these outcomes as a whole, thus reducing the risk of Type I error. Paired-samples t-tests were then run to compare pre-test and post-test scores on each scale individually, and finally to compare participants' responses at each of the 3 times on each individual item, thereby allowing for granular analyses.

RESULTS

Analyses indicated that attriters, those who did not complete surveys at all 3 times, and non-attriters did not differ significantly on initial levels of likelihood (p > .05). However, attriters had slightly higher initial levels of preparedness (M = 3.47) than non-attriters (M = 3.44), t (43199) = 2.98, p < .01. Attriters also had higher levels of self-efficacy (M = 3.01) than non-attriters (M = 3.00), t (43031) = 2.03, p < .05.

Results of the Hotelling's T^2 test indicated that, as a set, preparedness, likelihood, and self-efficacy differed between pre-test and post-test, F (3, 33512) = 16283, p < .001, $\eta^2_{partial}$ = .59. The next statisti-

cal analyses consisted of evaluating the 3 composite scales of preparedness, likelihood, and self-efficacy separately. Due to the large sample and its tendency to inflate significance levels when used alone, Cohen's dz was used to calculate effect size.[25] Cohen's dz measures the standardized difference between 2 means within a paired sample and allows for an intuitive interpretation of the size of the difference, such that a value of 1 would signify that the peaks of the 2 distributions of scores are offset by 1 standard deviation. A value of .2 is traditionally considered small, .5 is considered moderate, and .8 is considered large. Preparedness at pre-test (M = 3.44, SD = .73) was significantly lower than preparedness at post-test (M = 4.19, SD =.62), t (33664) = 212.62, p < .001, Cohen's dz = 1.10, 95% CI [1.09, 1.12], a very large effect size). Likelihood at pre-test (M = 3.24, SD = .60) was significantly lower than likelihood at post-test (M = 3.60, SD = .52), t (33610) = 107.97, p < .001, Cohen's dz = .64, 95% CI [.63, .65], a medium effect size). Self-efficacy at pre-test (M = 3.00, SD = .55) was significantly lower than self-efficacy at post-test (M = 3.42, SD = .49), t (33553) = 144.00, p < .001, Cohen's dz = .80, 95% CI [.79, .82], a large effect size). Table 2 shows the independent-samples t-tests results for all individual items. All items were significantly higher at post-test compared with pre-test.

Because there was a high level of attrition between the post-test and 3-month follow-up survey (sample size was 3839 at follow-up), to maximize statistical power, we did not include the follow-up data in the statistical analyses above. However, after running ANOVA tests on the measures of preparedness, likelihood, and self-efficacy independently, Bonferroni-corrected *post hoc* tests revealed in all cases that the follow-up scores were significantly lower than at post-test but still significantly higher than at pre-test (all p-values < .05).

To assess actual change in behaviors over time, we examined the responses of the 3937 participants at the 3-month follow-up via a set of paired-samples t-tests to determine if self-reported gatekeeper behaviors increased. The results show statistically significant increases from pre-training (baseline) to follow-up in the number of students about whom educators and staff were concerned due to their psychological distress, approached to discuss concern, and referred to school support services (Table 3).

Table 3
Behavioral Items at Pre-test and Follow-up

	Pre-test Mean (SD)	Follow-up Mean (SD)	t	Cohen's dz
Been concerned about due to their psychological distress	1.99 (7.16)	2.28 (6.55)	2.04*	0.04
Approached to discuss your concerns about their psychological distress	1.43 (4.75)	1.86 (3.70)	5.07***	0.10
Referred to school support services	1.38 (4.62)	1.59 (3.22)	2.63**	0.05

*p < .05, **p < .01, ***p < .001

Lastly, although not an objective of the simulation, at the 3-month follow-up over half of the sample (58.3%) either agreed or strongly agreed that, as a result of training, there was an increase the number of conversations they had with other adults regarding students about whom they were concerned.

Generally, participants were satisfied with the training simulation, with a mean rating of 3.27 on a 4-point scale (SD = 0.73; 43.3% of participants rated the training "excellent," the top point on the scale, and 41.0% rated it as "very good"). In addition, 98.7% of participants agreed or strongly agreed that all educators in their school should take the training, and 96.2% indicated they would recommend the training to a colleague. Regarding the difficulty of the training, 83.8% believed that it was at their current skill level, 6.7% that it was above, 6.4% that it was below, and 3.1% reported that they did not know.

DISCUSSION

The *At-Risk for Middle School Educators* intervention resulted in statistically significant increases in gatekeeper attitudes of preparedness, likelihood, and self-efficacy from pre- to post- to follow-up testing. There were also statistically significant increases in the number of students identified as being in psychological distress, approached to discuss concern, and referred to school support services. Both students and gatekeepers represented in the simulations were ethnically diverse. Furthermore, in responding to means efficacy questions, 80% of participants indicated that to a great or very great extent the scenarios were relevant to them and their students. Participants also highly recommended

that all faculty, staff, and administrators in their school should take the training.

Participants reported that part of the role of educators is to connect students experiencing psychological distress with mental health support services. This result, coupled with 58.3% of participants stating that as a result of the simulation they have had conversations with other adults in their school community regarding students about whom they are concerned, is encouraging. Perhaps as more middle school educators assume the role of a gatekeeper and discuss their concerns for particular students with their colleagues, we will see more universal support for student mental health. The simulation points out that teachers and other school staff working with students on a daily basis can monitor students' behavior, communicating directly with school mental health professionals about concerns. Gatekeepers can provide a warm handoff to the school's mental health professional by accompanying the student to meet the counselor, for example. In addition, school psychologists, counselors, and nurses, can benefit from the increased awareness of student concerns on the part of other staff members, extending and integrating their services across disciplines.

There are a number of limitations to note. First, to address possible developer bias, all statistical analyses and results were conducted and drafted by consultants from the University of Georgia. Second, data were collected over a long period of time; however, there is no reason to expect that cohort differences influenced results. Third, those who attrited appeared to have initially higher preparedness, likelihood, and self-efficacy scores than those who remained to complete the post-test. However,

it is worth noting that the effect sizes are small, suggesting that the large sample size drives this significant finding. Even so, it is possible that the training simulation may not have the same impact on those who attrited, perhaps because they initially had a higher skill set to assist students experiencing psychological distress. Another limitation is that the 3-month behavioral data were self-reported. Ideally having access to the schools' support services and/or counseling referral records would have allowed us to ascertain the impact of the intervention further. Lastly, this study is a within-group design and although not always practical in field studies, the study should be replicated with a control group.

The simulation is made available to schools via institutional licenses from Kognito to the districts or states. At present, 27 states are using the program described here, with similar results. Internationally, the Council of International Educational Exchange (CIEE), a nonprofit leader, is using the program in Egypt and South America; sites are also operational in the United Kingdom. The training has been embraced by large groups of policymakers, educators, and practitioners because of its convenience, suitability for many settings, and focus on self-direction of the participant. Future directions will include studies that examine the professional roles of participants and racial/ethnic factors as well as type of school. It may be that the impact of training is affected by these. Racial disparities in youth suicide rate suggest that a robust inclusion of race, of both students and participants, would be a fruitful area for further work. Another avenue for future research is describing and comparing the after-training supports received by participants.

IMPLICATIONS FOR HEALTH BEHAVIOR OR POLICY

The evaluation of the *At-Risk for Middle School Educators* training program implies several courses of action for practitioners, for researchers, and for policymakers. Practitioners, including the mental health workforce, should participate in suicide-specific prevention training. Whereas all mental health related training programs address assessment and prevention of suicide-related behavior, the advent of readily available suicide-specific training using evidence-based approaches is relatively new. Researchers should continue to conduct rigorous

evaluation of suicide prevention programs like *At-Risk*. A needed area for future research is the active connection, at the individual student level, of training participants, identification and referral of students, and tracking of student progress. Policymakers, who in this case are school administrators and other educational programming decision-makers, should adopt trainings like the one described. The training is evidence-based, comparatively easy to implement, and partially fulfills statewide suicide prevention training requirements for educators.

In the *At-Risk for Middle School Educators* training, gatekeepers (those having contact with students in schools) are provided skills to identify youth at-risk for suicide. The focus is on connecting at-risk youth with appropriate services to address their mental and behavioral health needs. An increasing number of states have requirements for educational personnel to be trained in suicide prevention. The *At-Risk for Middle School Educators* training provides a convenient and user-friendly way to earn required suicide prevention training credit. When selecting training programs for gatekeepers, administrators should keep in mind that the program:

- *Should be evidence-based*. Professional development approaches that use effective techniques such as MI are of particular importance, increasing the likelihood that the program will result in participant gains.
- *Should be schedule-friendly*. By employing a training approach that can be accessed at any time by the user, professional development time is not required.
- *Should be user-friendly*. Online training can be completed in the privacy of one's home or office. Furthermore, online training promotes learner feelings of safety. Learners report feeling less judged and more likely to build rapport and open up when interacting with virtual humans as opposed to face-to-face role play simulations.[26]
- *Should be cost effective*. In addition to being evidence-based, the online simulation is ready for dissemination as a finished product. Fidelity is maintained because the program cannot be altered. Fidelity refers to the standardization of quality of delivery across all trainers. This is possible because the rela-

tionship between the user's dialogue decision and the response of the emotionally responsive virtual humans are controlled by a set of mathematical behavioral models and algorithms specifically designed to simulate real interactions with patient types representing particular personality traits or conditions. These algorithms ensure that users are repeatedly exposed to target conversation and behavior patterns as a way to develop skills and knowledge.[27]Across evidence-based programs, fidelity has been identified as a key component contributing to successful outcomes. In addition, online training eliminates the need for travel expenses and the cost of being extracted from their work. The cost varies depending on the number of licenses; specific cost can be obtained by contacting the vendor.

• *Should build on the existing staff resources of the system*. Local resources are provided to link participants with referral information. Location of and contact information for campus, institutional, or local resources can be provided. Participants can then provide a "warm hand-off," linking students with needed support services directly.

• *Should be accessible by a wide variety of users, perhaps in remote areas*. Telehealth/telemedicine platform increases accessibility for rural and frontier areas which tend to have high rates of suicide. Because of the way in which the Kognito training is delivered, via electronic platform received by the individual participant, it is encompassed in the definition of eHealth.[28] The use of telecommunication technology is emerging as an important option for disseminating training as well as addressing any number of information and health-related issues.

Public Health

A report from the RAND corporation emphasizes that, using a public health approach, primary and secondary prevention may be able to impact those not yet identified as needing suicide-related services.[29] The National Action Alliance for Suicide Prevention, in collaboration with the Zero Suicide initiative and SAMHSA, has published a monograph on recommended standards for care of people with suicide risk.[30] The first gap addressed in the monograph is inadequate identification of suicide risk. Employing a public health approach,

• Effective identification of those at risk for suicide includes entertaining the possibility that every person could be at risk for suicide. For educators and others working in schools, this means that all students and all staff are potentially at risk.

• Casting such a wide net would inevitably lead to over-identification; however, the consequences of missing a person who is genuinely at risk justify the overinclusion.

• Beginning with the universal focus, having effective tools to determine which people are more likely to be at risk is an important addition to the gatekeeper's toolkit.

• Specific training, coupled with the knowledge and skills to take the next step (connecting students with helpers) increases the likelihood that an at-risk student will in fact be connected with someone who can further assess risk.

Healthy People 2020

In Healthy People 2020, Mental Health and Treatment Expansion are objectives[31] addressed in the *At Risk for Middle School Educators* training by

• *MHMD 1: Reduce the suicide rate and MHMD 2: Reduce suicide attempts by adolescents*. Gatekeeper training in general and youth suicide prevention training in particular have been shown to reduce the suicide rate as well as suicide attempts by adolescents. The *At-Risk* program increases the likelihood that participants will refer students for services that address their suicide risk. In the months following training, participants report that they increased their ability to identify and refer students at-risk. By engaging in a one-time one-hour training, a gatekeeper can gain and practice knowledge to increase the ability to identify and refer youth in need of mental health treatment. This process has been shown to reduce suicide attempts by adolescents with the goal of reducing the suicide rate.[13]

• *Treatment Expansion: MHMD 6: Increase*

the proportion of children with mental health problems who receive treatment. A focus of the *At-Risk* program is to connect students who may have mental health problems with treatment providers. The specific mechanism used in the program is to walk students to the counselor, thus providing a "warm hand-off" to a provider. Counselors can then assess and refer for additional services as needed, matching students to local treatment providers based on location, effectiveness, and family preference.

Specific Recommendations for Implementation

- Use a public health approach to consider that everyone can be at risk of suicide. Participate in training to learn to identify specific behavioral warning signs, as well as to learn how to approach someone about whom you are concerned.
- Engage in conversation with the person to determine whether a substantial risk exists. If it does, use MI techniques to engage the person in a referral to the school counselor, school psychologist.
- Improve school staff connection by having an active system in place: gatekeepers readily access counselors, school psychologists, school nurses. The referral triggers further specific risk assessment and engagement of mental health services.
- Invoke the existing statewide laws requiring educator training in suicide prevention to include *At-Risk* among programs certified for credit toward meeting the requirement. Educators appreciate the opportunity to participate in a for-credit program at their convenience.

Suicide prevention among middle school students is the US requires urgent attention because it is on the increase. The *At-Risk for Middle School Educators* training program is one tool that has been shown to help equip school personnel as they address this difficult task.

Human Subjects Approval Statement

The Baruch College (City University of New York) Human Protections Program Office determined that *At-Risk for Middle School Educators* is a professional development program and did not meet the definition of human subjects research as defined by the federal regulations 45 CFR 46.102, and is therefore exempt from review. Participants provided informed consent and agreed to use of their response for scientific publication.

Conflict of Interest Disclosure Statement

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